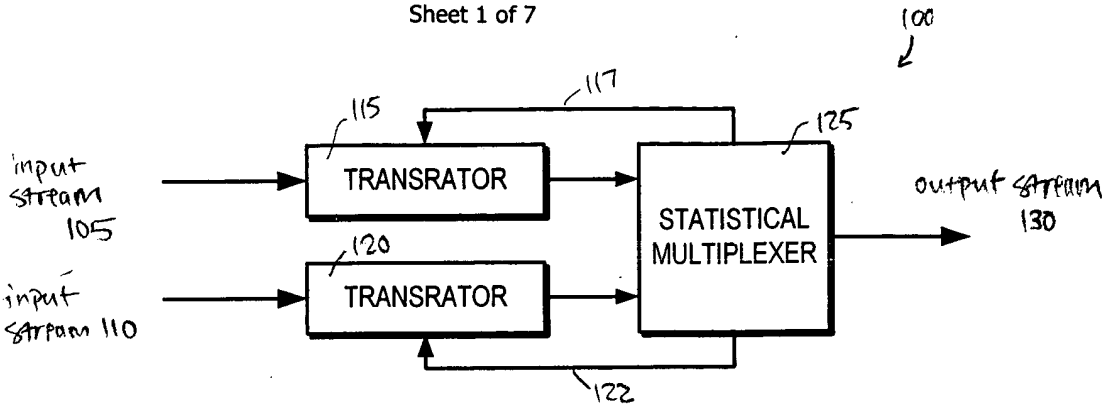

FIG. 1
(Prior Art)

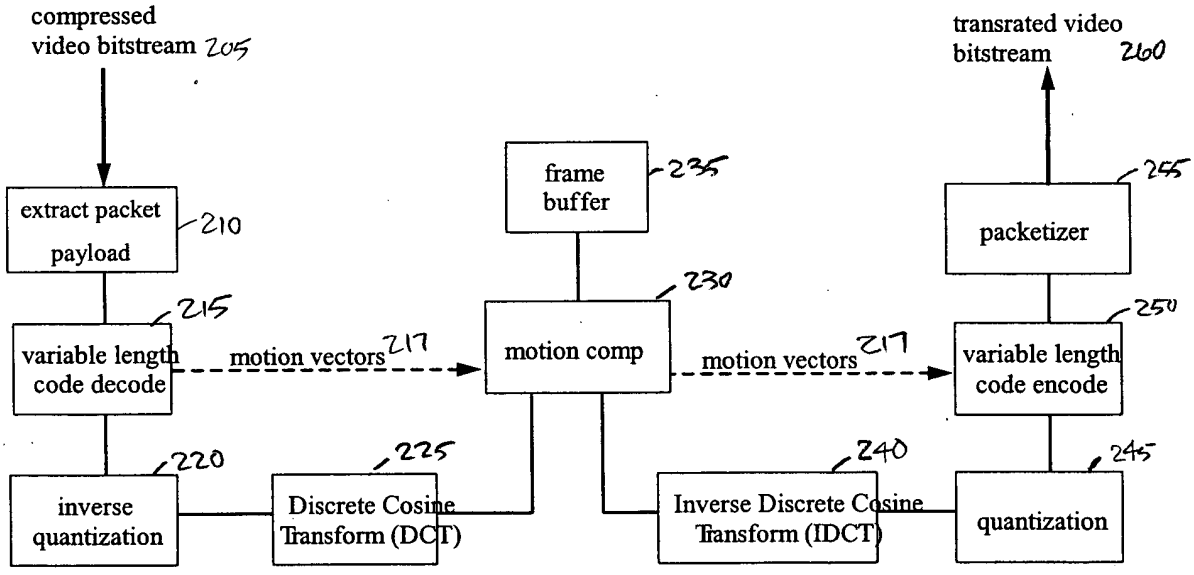

FIG. 2
(Prior Art)

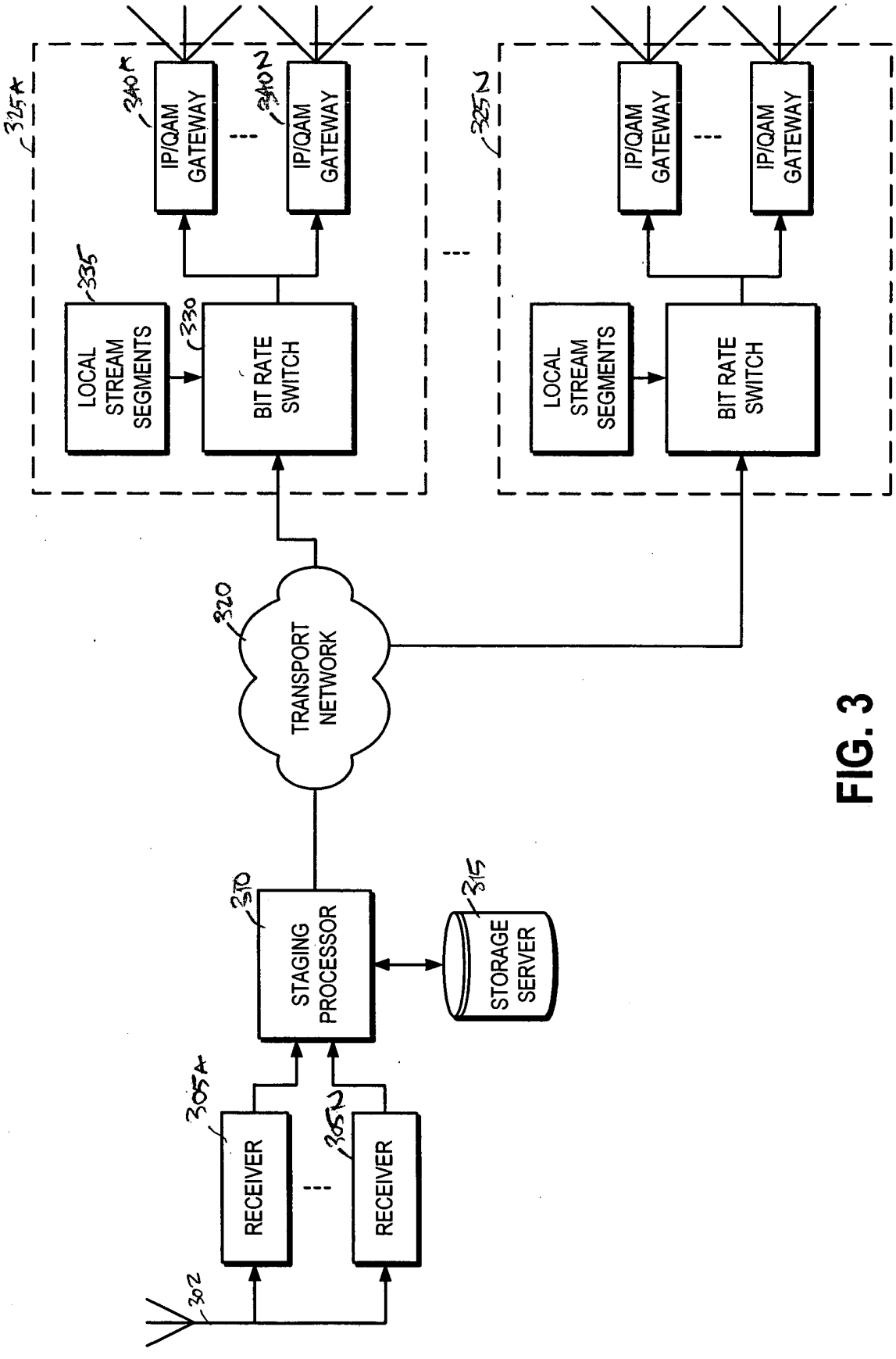
325A
340A
IP/QAM GATEWAY
340N
IP/QAM GATEWAY
325N
IP/QAM GATEWAY
IP/QAM GATEWAY
335
LOCAL STREAM SEGMENTS
330
BIT RATE SWITCH
LOCAL STREAM SEGMENTS
BIT RATE SWITCH
320
TRANSPORT NETWORK
310
STAGING PROCESSOR
315
STORAGE SERVER
305A
RECEIVER
305N
RECEIVER
302

FIG. 3

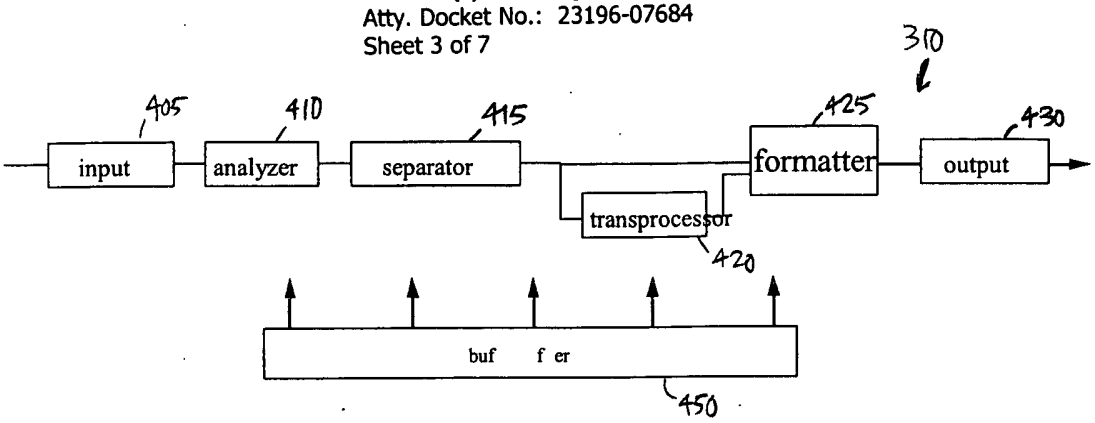
310
405
410
415
425
430
input
analyzer
separator
formatter
output
transprocessor
420
buf f er
450

FIG. 4

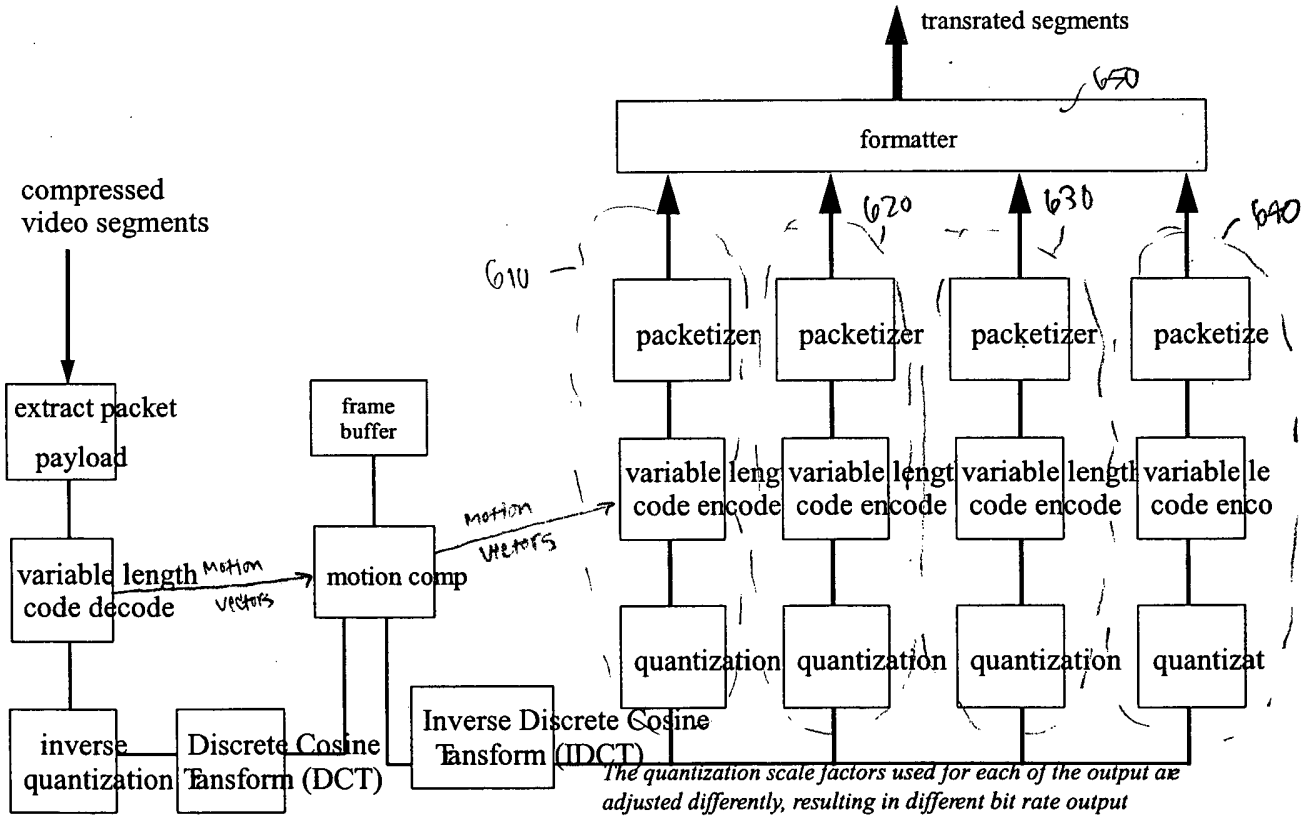
transrated segments
650
formatter
compressed video segments
610
620
630
640
packetizer
packetizer
packetizer
packetize
extract packet payload
frame buffer
variable length code decode
motion vectors
motion comp
motion vectors
variable leng code encode
variable lengt code encode
variable lengt code encode
variable le code enco
quantization
quantization
quantization
quantizat
inverse quantization
Discrete Cosine Tansform (DCT)
Inverse Discrete Cosine Tansform (IDCT)
The quantization scale factors used for each of the output are adjusted differently, resulting in different bit rate output

FIG. 6

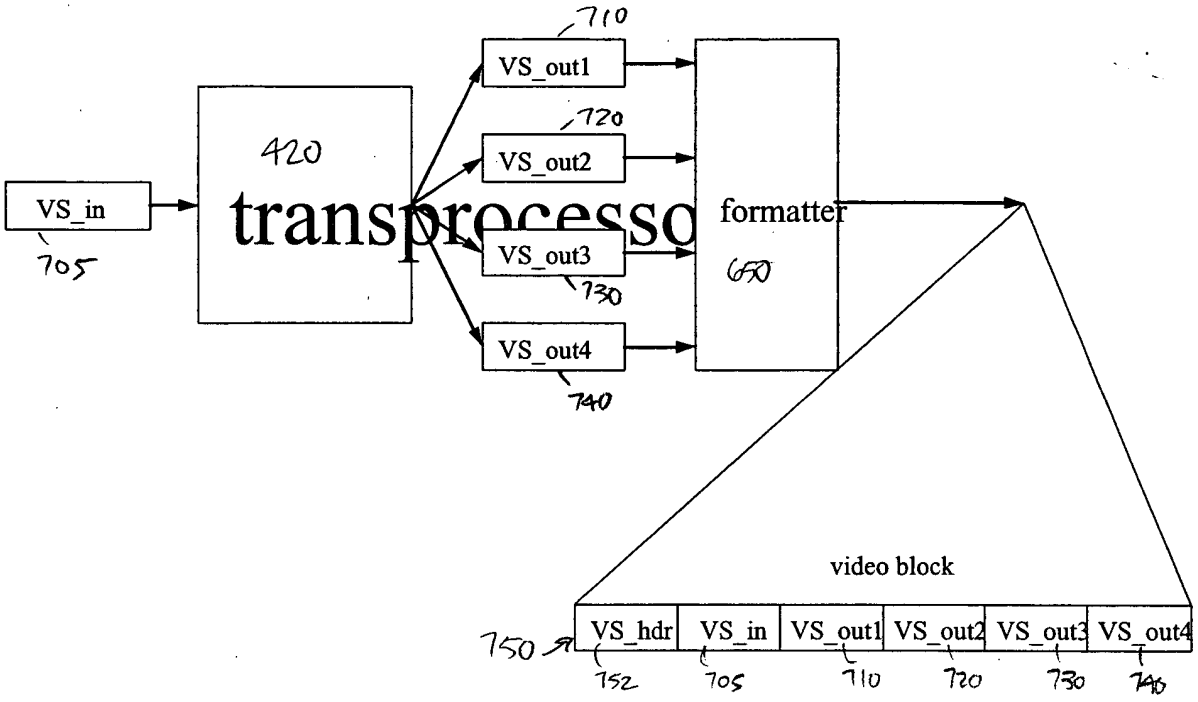
710
VS_out1
720
VS_out2
420
VS_in
transprocesso
formatter
VS_out3
730
650
VS_out4
740
705
video block
750
VS_hdr
VS_in
VS_out1
VS_out2
VS_out3
VS_out4
752
705
710
720
730
740

FIG. 7

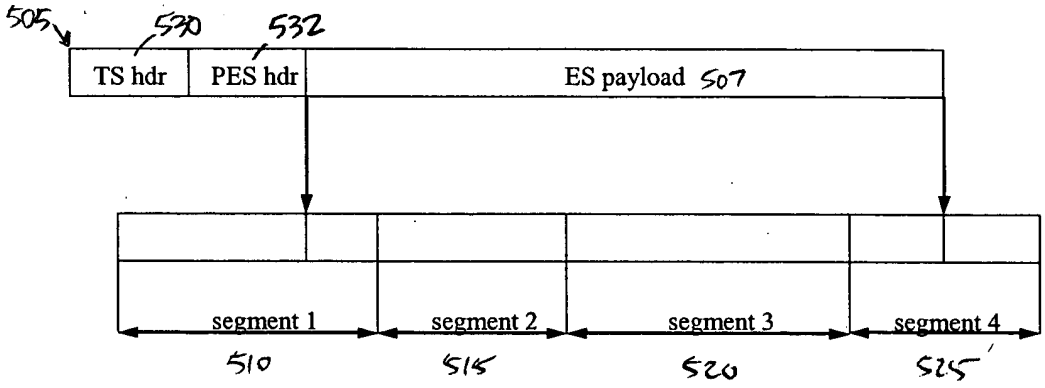
505
530
532
TS hdr
PES hdr
ES payload 507
segment 1
segment 2
segment 3
segment 4
510
515
520
525

FIG. 5

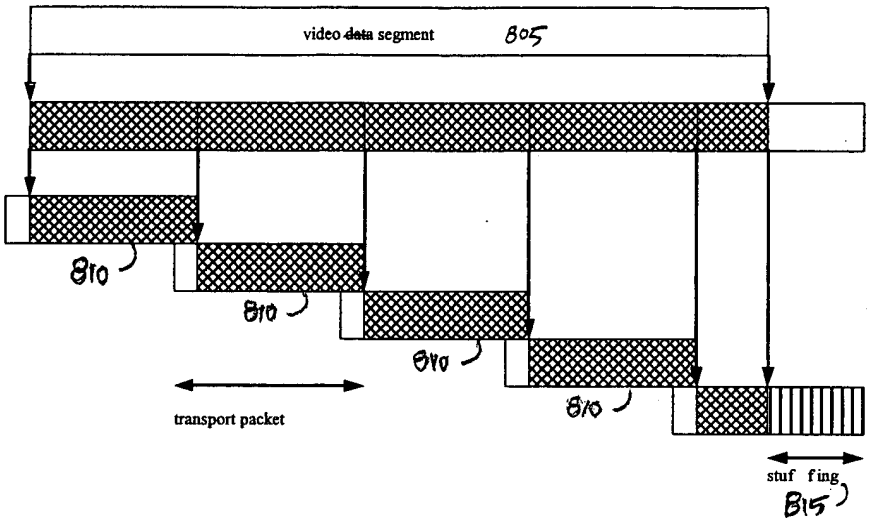
video ~~data~~ segment
805
810
810
810
810
transport packet
stuf fing
815

FIG. 8

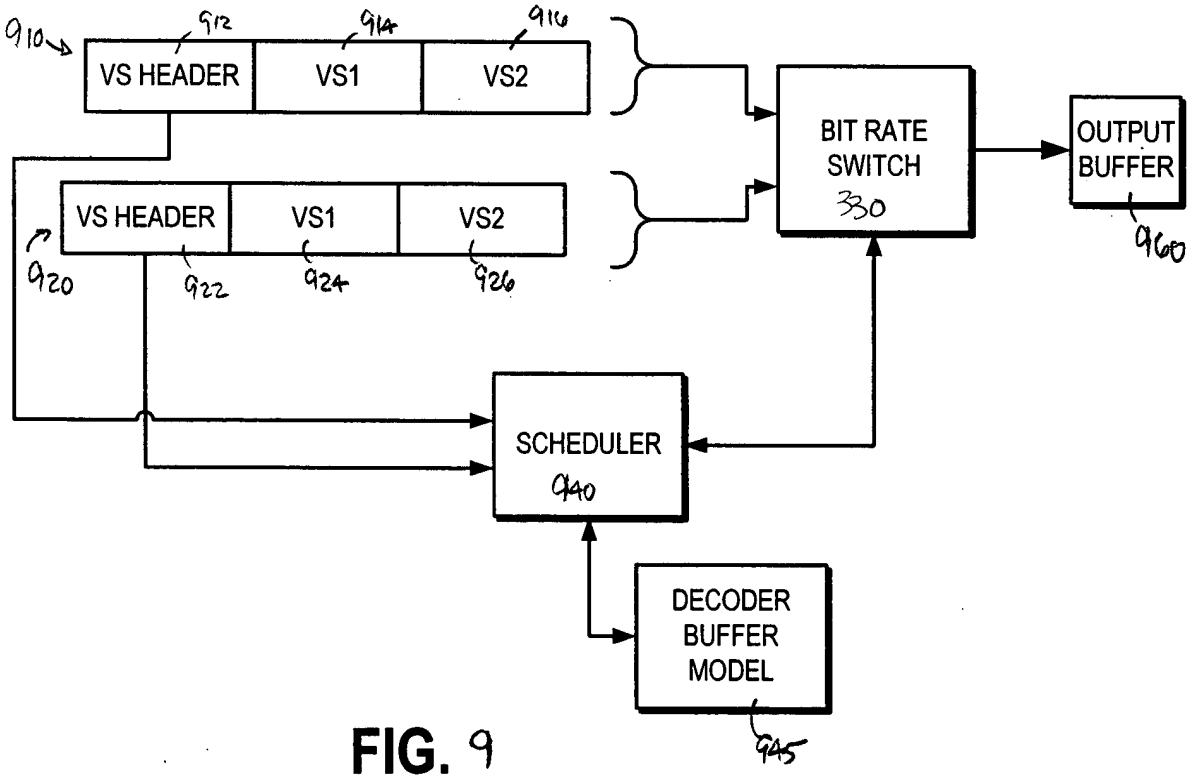
910
912
914
916
VS HEADER
VS1
VS2
VS HEADER
VS1
VS2
920
922
924
926
BIT RATE SWITCH
330
OUTPUT BUFFER
960
SCHEDULER
940
DECODER BUFFER MODEL
945

FIG. 9

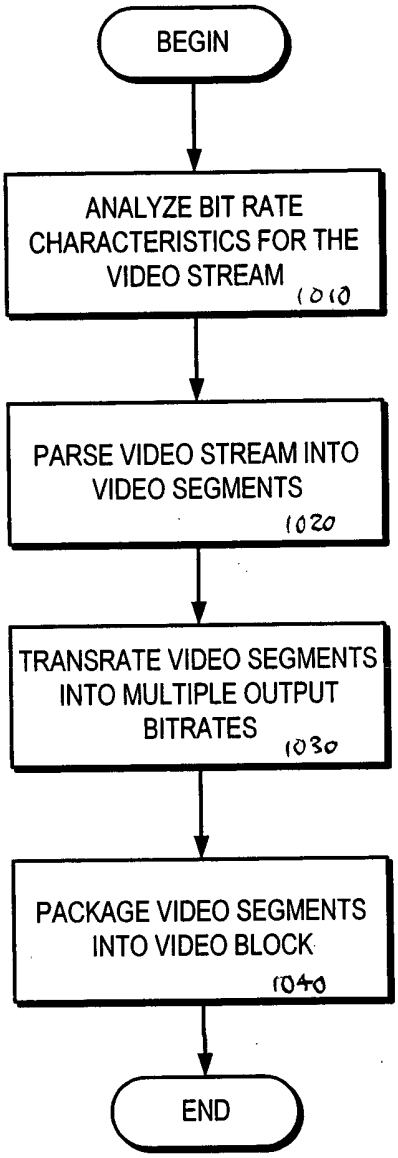
BEGIN
ANALYZE BIT RATE CHARACTERISTICS FOR THE VIDEO STREAM
1010
PARSE VIDEO STREAM INTO VIDEO SEGMENTS
1020
TRANSRATE VIDEO SEGMENTS INTO MULTIPLE OUTPUT BITRATES
1030
PACKAGE VIDEO SEGMENTS INTO VIDEO BLOCK
1040
END

FIG. 10

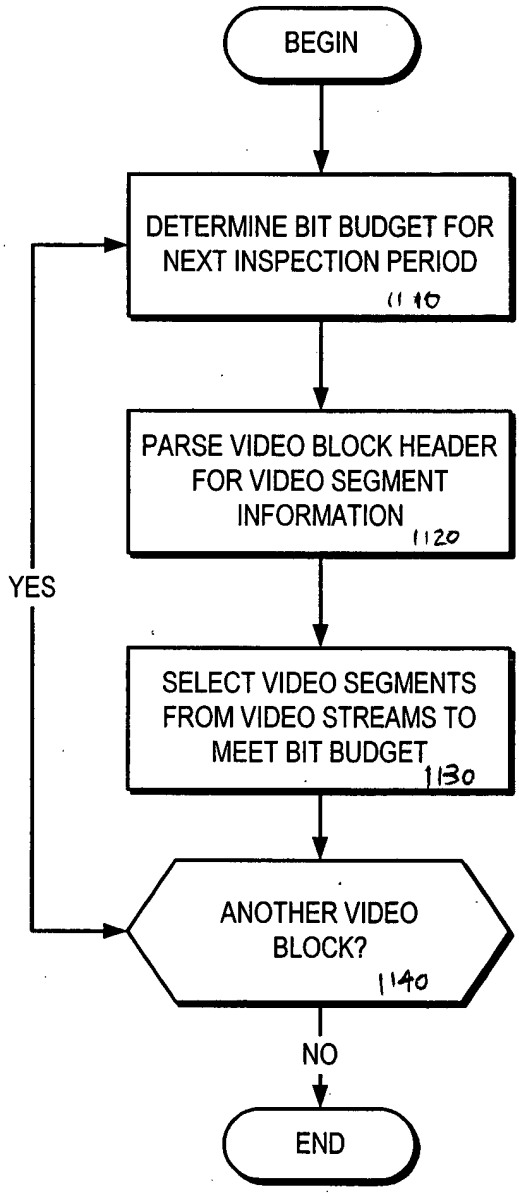
BEGIN
DETERMINE BIT BUDGET FOR NEXT INSPECTION PERIOD
1110
PARSE VIDEO BLOCK HEADER FOR VIDEO SEGMENT INFORMATION
1120
SELECT VIDEO SEGMENTS FROM VIDEO STREAMS TO MEET BIT BUDGET
1130
ANOTHER VIDEO BLOCK?
1140
YES
NO
END

FIG. 11